Amendments to the Claims:

Please amend the claims as follows:

1-34. (Canceled)

35. (Currently Amended) A method of transmitting data in a wireless multiple-input multiple-output (MIMO) communication system, comprising:

coding and modulating a first plurality of data streams to obtain a first plurality of data symbol streams;

using a steered spatial multiplexing mode, spatially processing the first plurality of data symbol streams with a first plurality of steering vectors to obtain a first plurality of transmit symbol streams for transmission from a plurality of antennas to a first user terminal in a first transmission interval;

coding and modulating a second plurality of data streams to obtain a second plurality of data symbol streams; and

using a non-steered spatial multiplexing mode, providing the second plurality of data symbol streams as a second plurality of transmit symbol streams ~~in accordance to a non-steered spatial multiplexing mode~~ for transmission from the plurality of antennas to a second user terminal in a second transmission interval.

36. (Original) The method of claim 35, further comprising:

deriving the first plurality of steering vectors such that the first plurality of data streams are transmitted on a plurality of orthogonal spatial channels of a first MIMO channel for the first user terminal.

37. (Original) The method of claim 35, further comprising:

coding and modulating a third plurality of data streams to obtain a third plurality of data symbol streams; and

spatially processing the third plurality of data symbol streams with a second plurality of steering vectors to obtain a third plurality of transmit symbol streams for transmission from the

plurality of antennas to a plurality of user terminals in a third transmission interval.

38. (Original) The method of claim 37, further comprising:

deriving the second plurality of steering vectors such that the third plurality of data streams are received with suppressed crosstalk at the plurality of user terminals.

39. (Currently Amended) An apparatus in a wireless multiple-input multiple-output (MIMO) system, comprising:

a transmit data processor operative to

code and modulate a first plurality of data streams to obtain a first plurality of data symbol streams, and

code and modulate a second plurality of data streams to obtain a second plurality of data symbol streams; and

a transmit spatial processor operative to

using a steered spatial multiplexing mode, spatially process the first plurality of data symbol streams with a first plurality of steering vectors to obtain a first plurality of transmit symbol streams for transmission from a plurality of antennas to a first user terminal in a first transmission interval, and

using a non-steered spatial multiplexing mode, provide the second plurality of data symbol streams as a second plurality of transmit symbol streams ~~in accordance to a non-steered spatial multiplexing mode~~ for transmission from the plurality of antennas to a second user terminal in a second transmission interval.

40. (Currently Amended) A method of receiving data in a wireless multiple-input multiple-output (MIMO) communication system, comprising:

using a steered spatial multiplexing mode, ~~performing receiver spatial~~ processing [[on]] a first plurality of received symbol streams ~~in accordance with a first spatial multiplexing mode~~ to obtain a first plurality of recovered data symbol streams;

demodulating and decoding the first plurality of recovered data symbol streams in accordance with a first plurality of rates to obtain a first plurality of decoded data streams;

using a non-steered spatial multiplexing mode, ~~performing receiver spatial~~ processing

[[on]] a second plurality of received symbol streams ~~in accordance with a second spatial multiplexing mode~~ to obtain a second plurality of recovered data symbol streams~~, wherein the second spatial multiplexing mode is a non-steered spatial multiplexing mode~~; and

demodulating and decoding the second plurality of recovered data symbol streams in accordance with a second plurality of rates to obtain a second plurality of decoded data streams.

41. (Currently Amended) The method of claim 40, ~~wherein the first spatial multiplexing mode is a steered spatial multiplexing mode, and~~ wherein the first plurality of received symbol streams are spatially processed with a plurality of eigenvectors for a plurality of spatial channels of a MIMO channel for a user terminal.

42. (Canceled)

43. (Previously Presented) The method of claim 40, wherein the second plurality of decoded data streams are estimates of a plurality of data streams transmitted by a single user terminal.

44. (Previously Presented) The method of claim 40, wherein the second plurality of decoded data streams are estimates of a plurality of data streams transmitted simultaneously by a plurality of user terminals.

45. (Previously Presented) The method of claim 40, wherein the second plurality of received symbol streams are spatially processed based on a channel correlation matrix inversion (CCMI) technique.

46. (Previously Presented) The method of claim 40, wherein the second plurality of received symbol streams are spatially processed based on a minimum mean square error (MMSE) technique.

47. (Previously Presented) The method of claim 40, wherein the second plurality of received symbol streams are spatially processed based on a successive interference cancellation (SIC) technique.

48. (Currently Amended) An apparatus in a wireless multiple-input multiple-output (MIMO)

communication system, comprising:

a receive spatial processor operative to

using a steered spatial multiplexing mode, ~~perform receiver spatial processing on~~ process a first plurality of received symbol streams ~~in accordance with a first spatial multiplexing mode~~ to obtain a first plurality of recovered data symbol streams, and

using a non-steered spatial multiplexing mode, ~~perform receiver spatial processing on~~ process a second plurality of received symbol streams ~~in accordance with a second spatial multiplexing mode~~ to obtain a second plurality of recovered data symbol streams~~, wherein the second spatial multiplexing mode is a non-steered spatial multiplexing mode~~; and

a receive data processor operative to

demodulate and decode the first plurality of recovered data symbol streams in accordance with a first plurality of rates to obtain a first plurality of decoded data streams, and

demodulate and decode the second plurality of recovered data symbol streams in accordance with a second plurality of rates to obtain a second plurality of decoded data streams.

49-60. (Canceled)

61. (Currently Amended) An apparatus of transmitting data in a wireless multiple-input multiple-output (MIMO) communication system, comprising:

means for coding and modulating a first plurality of data streams to obtain a first plurality of data symbol streams;

means for spatially processing, using a steered spatial multiplexing mode, the first plurality of data symbol streams with a first plurality of steering vectors to obtain a first plurality of transmit symbol streams for transmission from a plurality of antennas to a first user terminal in a first transmission interval;

means for coding and modulating a second plurality of data streams to obtain a second plurality of data symbol streams; and

means for providing, using a non-steered spatial multiplexing mode, the second plurality of data symbol streams as a second plurality of transmit symbol streams ~~in accordance to a non-steered spatial multiplexing mode~~ for transmission from the plurality of antennas to a second

user terminal in a second transmission interval.

62. (Previously Presented) The apparatus of claim 61, further comprising:

means for deriving the first plurality of steering vectors such that the first plurality of data streams are transmitted on a plurality of orthogonal spatial channels of a first MIMO channel for the first user terminal.

63. (Previously Presented) The apparatus of claim 61, further comprising:

means for coding and modulating a third plurality of data streams to obtain a third plurality of data symbol streams; and

means for spatially processing the third plurality of data symbol streams with a second plurality of steering vectors to obtain a third plurality of transmit symbol streams for transmission from the plurality of antennas to a plurality of user terminals in a third transmission interval.

64. (Currently Amended) A computer-program product for transmitting data in a wireless multiple-input multiple-output (MIMO) communication system comprising a computer readable medium having a set of instructions stored thereon, the set of instructions being executable by one or more processors and the set of instructions comprising:

instructions for coding and modulating a first plurality of data streams to obtain a first plurality of data symbol streams;

instructions for spatially processing, using a steered spatial multiplexing mode, the first plurality of data symbol streams with a first plurality of steering vectors to obtain a first plurality of transmit symbol streams for transmission from a plurality of antennas to a first user terminal in a first transmission interval;

instructions for coding and modulating a second plurality of data streams to obtain a second plurality of data symbol streams; and

instructions for providing, using a non-steered spatial multiplexing mode, the second plurality of data symbol streams as a second plurality of transmit symbol streams ~~in accordance to a non-steered spatial multiplexing mode~~ for transmission from the plurality of antennas to a second user terminal in a second transmission interval.

65. (Previously Presented) The computer-program product of claim 64, further comprising:

instructions for deriving the first plurality of steering vectors such that the first plurality of data streams are transmitted on a plurality of orthogonal spatial channels of a first MIMO channel for the first user terminal.

66. (Previously Presented) The computer-program product of claim 64, further comprising:

instructions for coding and modulating a third plurality of data streams to obtain a third plurality of data symbol streams; and

instructions for spatially processing the third plurality of data symbol streams with a second plurality of steering vectors to obtain a third plurality of transmit symbol streams for transmission from the plurality of antennas to a plurality of user terminals in a third transmission interval.

67. (Currently Amended) An apparatus of receiving data in a wireless multiple-input multiple-output (MIMO) communication system, comprising:

means for ~~performing receiver spatial~~ processing, using a steered spatial multiplexing mode, [[on]] a first plurality of received symbol streams ~~in accordance with a first spatial multiplexing mode~~ to obtain a first plurality of recovered data symbol streams;

means for demodulating and decoding the first plurality of recovered data symbol streams in accordance with a first plurality of rates to obtain a first plurality of decoded data streams;

means for ~~performing receiver spatial~~ processing, using a non-steered spatial multiplexing mode, [[on]] a second plurality of received symbol streams ~~in accordance with a second spatial multiplexing mode~~ to obtain a second plurality of recovered data symbol streams~~, wherein the second spatial multiplexing mode is a non-steered spatial multiplexing mode~~; and

means for demodulating and decoding the second plurality of recovered data symbol streams in accordance with a second plurality of rates to obtain a second plurality of decoded data streams.

68. (Currently Amended) The apparatus of claim 67, ~~wherein the first spatial multiplexing mode is a steered spatial multiplexing mode, and~~ wherein the first plurality of received symbol streams are spatially processed with a plurality of eigenvectors for a plurality of spatial channels

of a MIMO channel for a user terminal.

69. (Canceled)

70. (Currently Amended) A computer-program product for receiving data in a wireless multiple-input multiple-output (MIMO) communication system comprising a computer readable medium having a set of instructions stored thereon, the set of instructions being executable by one or more processors and the set of instructions comprising:

instructions for ~~performing receiver spatial~~ processing, using a steered spatial multiplexing mode, [[on]] a first plurality of received symbol streams ~~in accordance with a first spatial multiplexing mode~~ to obtain a first plurality of recovered data symbol streams;

instructions for demodulating and decoding the first plurality of recovered data symbol streams in accordance with a first plurality of rates to obtain a first plurality of decoded data streams;

instructions for ~~performing receiver spatial~~ processing, using a non-steered spatial multiplexing mode, [[on]] a second plurality of received symbol streams ~~in accordance with a second spatial multiplexing mode~~ to obtain a second plurality of recovered data symbol streams~~, wherein the second spatial multiplexing mode is a non-steered spatial multiplexing mode~~; and

instructions for demodulating and decoding the second plurality of recovered data symbol streams in accordance with a second plurality of rates to obtain a second plurality of decoded data streams.

71. (Currently Amended) The computer-program product of claim 70, ~~wherein the first spatial multiplexing mode is a steered spatial multiplexing mode, and~~ wherein the first plurality of received symbol streams are spatially processed with a plurality of eigenvectors for a plurality of spatial channels of a MIMO channel for a user terminal.

72-86. (Canceled)

87. (New) The apparatus of claim 39, further comprising:

a processor operative to derive the first plurality of steering vectors such that the first

plurality of data streams are transmitted on a plurality of orthogonal spatial channels of a first MIMO channel for the first user terminal.

88. (New) The apparatus of claim 39, wherein:

the transmit data processor is also operative to code and modulate a third plurality of data streams to obtain a third plurality of data symbol streams; and

the transmit spatial processor is also operative to, using the steered spatial multiplexing mode, spatially process the third plurality of data symbol streams with a second plurality of steering vectors to obtain a third plurality of transmit symbol streams for transmission from the plurality of antennas to a plurality of user terminals in a third transmission interval.

89. (New) The apparatus of claim 88, further comprising:

a processor operative to derive the second plurality of steering vectors such that the third plurality of data streams are received with suppressed crosstalk at the plurality of user terminals.

90. (New) The apparatus of claim 63, further comprising:

means for deriving the second plurality of steering vectors such that the third plurality of data streams are received with suppressed crosstalk at the plurality of user terminals.

91. (New) The computer-program product of claim 66, further comprising:

instructions for deriving the second plurality of steering vectors such that the third plurality of data streams are received with suppressed crosstalk at the plurality of user terminals.

92. (New) The apparatus of claim 48, wherein the first plurality of received symbol streams are spatially processed with a plurality of eigenvectors for a plurality of spatial channels of a MIMO channel for a user terminal.

93. (New) The apparatus of claim 48, wherein the second plurality of decoded data streams are estimates of a plurality of data streams transmitted by a single user terminal.

94. (New) The apparatus of claim 48, wherein the second plurality of decoded data streams are estimates of a plurality of data streams transmitted simultaneously by a plurality of user

terminals.

95. (New) The apparatus of claim 48, wherein the second plurality of received symbol streams are spatially processed based on a channel correlation matrix inversion (CCMI) technique.

96. (New) The apparatus of claim 48, wherein the second plurality of received symbol streams are spatially processed based on a minimum mean square error (MMSE) technique.

97. (New) The apparatus of claim 48, wherein the second plurality of received symbol streams are spatially processed based on a successive interference cancellation (SIC) technique.

98. (New) The apparatus of claim 67, wherein the second plurality of decoded data streams are estimates of a plurality of data streams transmitted by a single user terminal.

99. (New) The apparatus of claim 67, wherein the second plurality of decoded data streams are estimates of a plurality of data streams transmitted simultaneously by a plurality of user terminals.

100. (New) The apparatus of claim 67, wherein the second plurality of received symbol streams are spatially processed based on a channel correlation matrix inversion (CCMI) technique.

101. (New) The apparatus of claim 67, wherein the second plurality of received symbol streams are spatially processed based on a minimum mean square error (MMSE) technique.

102. (New) The apparatus of claim 67, wherein the second plurality of received symbol streams are spatially processed based on a successive interference cancellation (SIC) technique.

103. (New) The computer-program product of claim 70, wherein the second plurality of decoded data streams are estimates of a plurality of data streams transmitted by a single user terminal.

104. (New) The computer-program product of claim 70, wherein the second plurality of

decoded data streams are estimates of a plurality of data streams transmitted simultaneously by a plurality of user terminals.

105. (New) The computer-program product of claim 70, wherein the second plurality of received symbol streams are spatially processed based on a channel correlation matrix inversion (CCMI) technique.

106. (New) The computer-program product of claim 70, wherein the second plurality of received symbol streams are spatially processed based on a minimum mean square error (MMSE) technique.

107. (New) The computer-program product of claim 70, wherein the second plurality of received symbol streams are spatially processed based on a successive interference cancellation (SIC) technique.